

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOE S. O'CONNER

Appeal No. 1997-1317
Application No. 08/371,995¹

ON BRIEF

Before MARTIN, FLEMING, and BLANKENSHIP, Administrative Patent Judges.

MARTIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-12, all of the pending claims, under 35 U.S.C. §§ 102 and 103. We affirm.

¹ Application for patent filed January 12, 1995.

A. The invention

The invention is a device for distance measurement by radar.

B. The claims

Claim 1, the sole independent claim, reads as follows:

1. Device for distance measurement by radar, comprising:

(a) a distance measuring device having a frequency modulated radar -transmitter and -receiver (10) for guiding a radar beam onto an object to be measured and reflecting said beam from the object and for mixing of a transmitted frequency with a received frequency, a beat signal (30) [being] generated by mixing the transmitted and received frequencies,

(b) [a] frequency modulator connected to the radar -transmitter and -receiver for periodically varying the transmitted frequency of the radar signal of the radar -transmitter and -receiver as a saw tooth function and wherein the frequency of the beat signal corresponds to a travel time of the radar beam reflected by the object to indicate a measure of a distance of the object and

(c) a signal processing circuit connected to the modulator generating a measured value corresponding to the distance of the object and,

(d) a phase control circuit (phase locked loop circuit) (66) connected to the modulator for feeding the beat signal and for providing an output frequency, the output frequency forming the measured value of the distance.

We assume that the text enclosed in parenthesis is to be treated in the same way as the numerals enclosed in

parentheses, i.e., given no weight. See Manual of Patent Examining Procedure § 608.01(m) (7th ed., Rev. 1, Feb. 2000) (reference characters enclosed in parentheses are given no weight). Appellant does not contend otherwise.

C. The references and grounds of rejection

The references relied on by the examiner are:

Strauch	4,205,314	May 27, 1980
Kipp et al. (Kipp '221)	4,245,221	Jan. 13, 1981
Kipp ('309)	4,429,309	Jan. 31, 1984
Lazarus	4,739,330	Apr. 19, 1988
Hethuin et al. (Hethuin)	5,072,223	Dec. 10, 1991

Claims 1-12 stand rejected under 35 U.S.C. § 102 as anticipated by Strauch.

Claims 1-6 stand rejected "under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over either Kipp et al[.] ('221) or Kipp ('309), alone, or in view of Lazarus ('330) or Hethuin et al[.] ('223)" (Answer at 4). We note that appellant's brief

(at 10) incorrectly describes this rejection as based solely on § 103.

D. The level of skill in the art

The level of skill in the art is represented by the references. See In re Oelrich, 579 F.2d 86, 91, 198 USPQ 210, 214 (CCPA 1978) ("the PTO usually must evaluate both the scope and content of the prior art and the level of ordinary skill solely on the cold words of the literature"); In re GPAC Inc., 57 F.3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995) (Board did not err in adopting the approach that the level of skill in the art was best determined by the references of record).

**E. The merits of the § 102 rejection
of claims 1-12 based on Strauch**

Anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference. In re King, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986). Thus, appellant's burden on appeal with respect to a rejection for anticipation is to identify at least one claimed element that the examiner has failed to show

is disclosed or inherent in the reference. Compare In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1455 (Fed. Cir. 1998) ("[o]n appeal to the Board, an applicant can overcome a [35 U.S.C. § 103] rejection by showing insufficient evidence of prima facie obviousness or by rebutting the prima facie case with evidence of secondary indicia of nonobviousness."

Comparing claim 1 to Strauch, the examiner (Answer at 3) reads the claimed "distance measuring device having a frequency modulated radar -transmitter and -receiver" on Strauch's duplexer-mixer 3 and directional transmitting-receiving antenna 4, the claimed "frequency modulator" on modulator 2, the claimed "signal processing circuit" on time measuring device 7, and the claimed "phase control circuit" on frequency discriminator 6.

Appellant argues (Brief at 14) that "Strauch clearly teaches away from a radar unit by pointing out in column 1 that prior art devices ('the system described in these specifications') use radar systems (lines 60+) which are disadvantageous as they have a panoramic field of view." Appellant is apparently relying on column 1, lines 59-67 of

Strauch, which state that the prior art system described in United Kingdom patent specification Nos. 671 461 and 671 464 "is a radar system intended for locating any moving body and hence has a panoramic field of view, whereas the device accoring [sic] to the invention has a sectional view which is directed towards a specific known, moving target" (col. 1, lines 62-67). While it is true Strauch does not use the term "radar" to describe his device in this passage or anywhere else in the specification, we agree with the examiner that his device clearly employs radar, which, as the examiner notes (Answer at 5-6), is shorthand for RA(DIO) D(ETECTING) A(ND) R(ANGING).² Strauch's abstract describes the invention as "[a] radio range measuring apparatus" and Strauch's claim 1 recites, inter alia,

[a]n apparatus for measuring the range and the recessional or approach speed of a target comprising means for generating a radio signal, means for frequency modulating said radio signal . . . to produce a linearly frequency modulated radio signal, means for transmitting said frequency modulated radio signal toward said target, [and] means for receiving the

² The American Heritage Dictionary of the English Language 1075 (New College ed. 1975).

radio signal reflected from said target.
[Emphasis added.]

Appellant's next argument relative to claim 1 is that Strauch further points out in column 2, lines 3-7, that the system described in the U.K. patent specifications "generates a sawtooth transmission frequency having a fixed modulation slope and consequently operates according to a different principle than the device according to the invention" (Brief at 14). This argument is not understood, because appellant has not explained why claim 1 precludes variation of the slope, as occurs in Strauch's device, wherein the modulation slope of the transmitted frequency varies as a function of the range (col. 2, lines 7-9).

Appellant also argues that "Strauch mandates (column 4) divider 10 as a necessity, for that device to work, for cancelling drifts in the two inputs of the mixer, which leads away from the simple device proposed in the present invention" (Brief at 14). This argument fails because appellant has not explained why claim 1 precludes the presence of such a divider.

Appellant's final argument that Strauch "lack[s] all the claimed crucial elements of the present claims" (Brief at 14) is unconvincing because appellant has not explained which claimed feature or features do not appear in the reference.

For the foregoing reasons, the § 102 rejection based on Strauch is affirmed with respect to claim 1.

Turning now to dependent claims 2-12, appellant describes the limitations of these claims (Brief at 11-13) and argues that none of these limitations are disclosed in Strauch (Brief at 13). The examiner dismissed this portion of the brief as "merely a redacted version of the claims under appeal" (Answer at 5) and did not address any of these limitations. In our view, this dismissal was unjustified, because the final rejection fails to explain how the limitations of claims 2-12 read on Strauch. Under these circumstances, appellant's denial that these limitations are disclosed in Strauch should have been met with an explanation of how they are satisfied by the reference. The examiner's failure to provide such an explanation with respect to any of claims 2-12 means the § 102 rejection of those claims based on Strauch cannot be sustained.

**F. The merits of the rejections based on
Kipp '221, Kipp '309, Lazarus, and Hethuin**

The examiner contends (Answer at 5) that claims 1-6 are anticipated by each of the Kipp patents because the claim term "sawtooth" reads on the triangular modulating waveforms shown in these patents (see the sole figure of Kipp '221 and Figure 2 of Kipp '309). Alternatively, the examiner argues that the use of sawtooth waveforms to frequency-modulate a distance-determining radar signal is suggested by each of Lazarus and Hethuin, which employ the terms "saw tooth" and "sawtooth" to describe their waveforms (Lazarus, col. 3, line 55; Hethuin, col. 2, lines 41-42). As the examiner correctly notes (Answer at 7), appellant does not deny that the triangular waveforms in the Kipp patents accurately can be described as sawtooth in shape. In any event, the triangular waveforms disclosed in the Kipp patents fall within the definition of the term "sawtooth wave" given in the Academic Press Dictionary of Science and Technology: "*Electronics*. a periodic wave whose amplitude varies linearly between two values." This definition can be found on-line at <http://www.harcourt.com/dictionary/def/9/0/0/1/ 9001900.htm>,

which site can be reached via <http://ptoweb/patents/siradmin/stic/sticnp>.

1. Anticipation

Inasmuch as appellant failed to specifically address the § 102 rejection based on the Kipp patents, we have considered appellant's § 103 arguments as also directed to the § 102 rejection.

The examiner describes each Kipp patent as disclosing a device for measuring distance by radar, including a radar transmitter and receiver, a mixer for outputting a beat frequency, a triangle wave generator or modulator, and a signal processing circuit which includes a phase locked loop circuit (Answer at 4). Considering in particular Kipp '309, the examiner appears to be reading the claim limitations on the reference as follows: the claimed "distance measuring device" on voltage controlled oscillator 14, directional coupler 20, circulator 24, antenna 26, and mixer 22; the claimed "frequency modulator" on triangle-wave generator 12; the claimed "signal processing circuit" on the remaining circuitry, which produces an output frequency F_L representing the range (col. 3, lines 55-58); and the claimed

"phase control circuit" on phase lock loop 44, which is part of the signal processing circuitry.³ Kipp '221 discloses similar circuitry.

Appellant contends (Brief at 17) that the Kipp references fail to disclose the claimed "distance measuring device having a frequency modulated radar -transmitter and -receiver (10) for guiding a radar beam onto an object to be measured and receiving a reflecting beam from the object and for mixing of a transmitted frequency with a received frequency and generating a beat signal (30) by mixing the transmitted and received frequencies." The only reasons given are that Kipp '221 "describes a system that requires predetermined range parameters for comparing with input from a target of interest" and Kipp '309 "provides a phase locked loop for receiving a frequency modulated/continuous wave radar transmitted and received input signal and selective filter for filtering the undesired frequencies" (Brief at 17). This reasoning is unpersuasive because it fails to explain why the

³ Appellant does not argue that the claim language precludes the phase control circuit from being part of the signal processing circuit.

claim language cannot be read onto the elements relied on by the examiner in Kipp '309

(i.e., elements 14, 20, 22, 24, and 26) or the corresponding elements in Kipp '221.

Appellant's assertions (Brief at 18) that the Kipp references also fail to disclose the claimed frequency modulator, signal processing circuit, and phase control circuit are unconvincing because they, too, are unsupported by an explanation of why these claimed elements do not read on the elements relied on by the examiner in the Kipp patents.

The rejection of claim 1 as anticipated by either one of Kipp '221 and Kipp '309 is therefore affirmed.

Appellant also argues (Brief at 18-19) that other specific limitations are not taught or suggested by any of the references, including the frequency voltage converter of claim 2, the gate circuit of claim 3, the comparator of claim 4, and the amplifier of claim 5, on which claim 6 depends. Rather than explaining how these limitations are satisfied by the

Kipp patents, the examiner responds by stating that "the rejection sets forth, and the individual references clearly spell out, the elements that are claimed" (Answer at 7), which is inadequate to satisfy the examiner's initial burden of establishing anticipation with respect to the claimed elements in question. The § 102 rejection of claims 2-6 based on either one of the Kipp patents is reversed.

2. Obviousness

Turning now to the question of obviousness, the § 103 rejection of claim 1 based on either one of the Kipp patents in view of Lazarus or Hethuin is affirmed pro forma because the § 102 rejection of that claim based on the Kipp patents has been affirmed. Anticipation is the epitome of obviousness. Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983).

As already noted, the examiner has not shown that the limitations recited in dependent claims 2-5 are disclosed in either of the Kipp patents. Nor has the examiner explained how these limitations are suggested by Lazarus and Hethuin, which the examiner cites solely for their disclosure of using

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sawtooth waveforms to frequency-modulate radar signals (Answer at 5). Consequently, the § 103 rejection of claims 1-5 and of claim 6, which depends on claim 5, is reversed.

In summary, each of the rejections is affirmed only with respect to claim 1.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

JOHN C. MARTIN)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
MICHAEL R. FLEMING)	
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
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HOWARD B. BLANKENSHIP)	
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